

INCREMENTAL MOTION ESTIMATION THROUGH LOCAL BUNDLE ADJUSTMENT

ABSTRACT OF THE DISCLOSURE

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An incremental motion estimation system and process for estimating the camera pose parameters associated with each image of a long image sequence. Unlike previous approaches, which rely on point matches across three or more views, the present system and process also includes those points shared only by two views. The problem is formulated as a series of localized bundle adjustments in such a way that the estimated camera motions in the whole sequence are consistent with each other. The result of the inclusion of two-view matching points and the localized bundle adjustment approach is more accurate estimates of the camera pose parameters for each image in the sequence than previous incremental techniques, and providing an accuracy approaching that of global bundle adjustment techniques except with processing times about 100 to 700 times faster than the global approaches.